ABSTRACT

The present invention provides a honeycomb structure which includes a cell structure section 3 including a plurality of cells 2 partitioned by a plurality of partition walls 1a and 1b, and an outer circumferential wall section 4 surrounding the cell structure section 3. The cell structure section 3 includes a first partition wall group having the partition walls 1a positioned in parallel and a second partition wall group having the partition walls 1b which intersect the partition walls of the first partition wall group at right angles and are positioned in parallel, each of the partition walls 1a and 1b connecting two different locations of the outer circumferential wall section 4 through one continuous plane. In this honeycomb structure, the partition wall intervals of the partition walls 1a and 1b of each partition wall group positioned in parallel are varied stepwise in at least a part of the cell structure section 3, at least some of the cells have a rectangular cross-sectional shape, and all the partition walls 1a and 1b have such a ratio of the cell side length to the partition wall thickness that the partition wall can withstand pressure during canning. According to the present invention, a honeycomb structure which excels in isostatic strength and thermal shock resistance and has such a high industrial applicability that the honeycomb structure can be manufactured at low cost can be provided.